



Mini Gun Madness

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TOOLS:

- [Drill, or drill press \(1\)](#)
- [Hot Glue gun & hot glue \(1\)](#)
- [Soldering iron \(1\)](#)
- [Spring clamps \(1\)](#)
- [Tape measure \(1\)](#)
- [jig saw \(1\)](#)



PARTS:

- [Cordless tool with large motor and gearing or speed control \(1\)](#)
- [High intensity LEDs \(2\)](#)
- [poster board sheet \(1\)](#)
- [1/4" plywood \(~3 sq ft\) \(1\)](#)
- [metal repair tape \(1\)](#)
- [Two wire connector \(1\)](#)
- [1/4" copper tubing \(~3 ft\) \(1\)](#)
- [copper brackets \(2\)](#)
- [Gorilla Glue \(1\)](#)
- [Wood Glue or Epoxy \(1\)](#)

SUMMARY

The basic construction is relatively simple, with a standard 1/2 inch copper pipe serving as the main support for lightweight tubes (barrels) that spin and emit light when they pass in front of a high intensity LED source. A cheap cordless drill -- something from Harbor Freight, for example -- would be the easiest way to start.

Step 1 — Mini Gun Madness



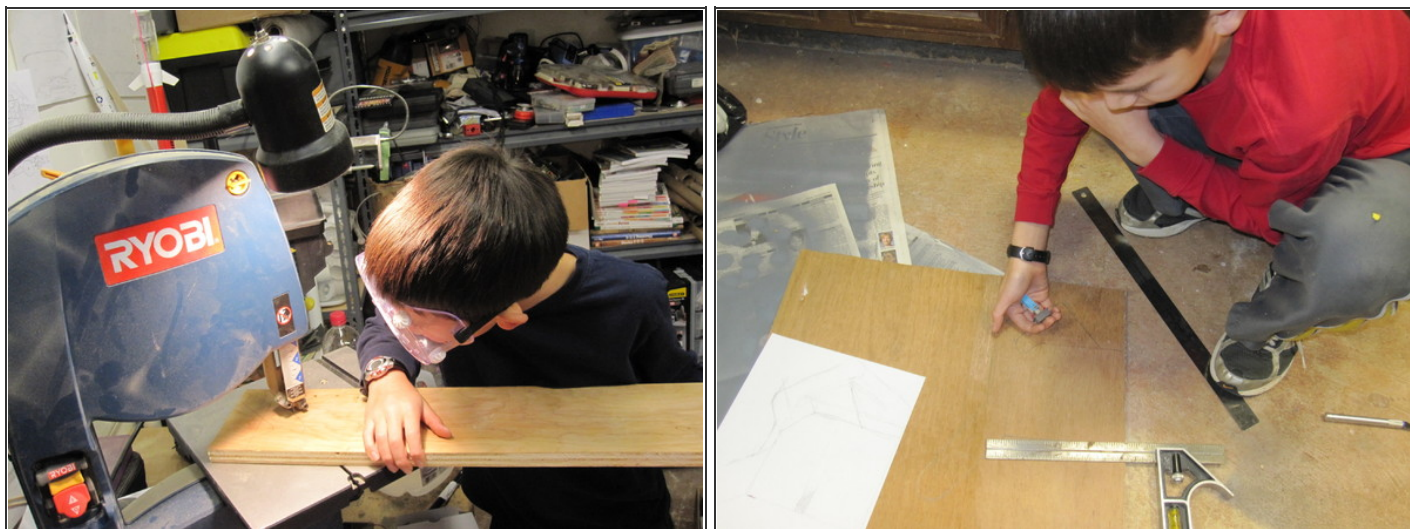
- Cut wide strips (~1 ft) of poster board about two feet long, line the first 3 inches or so with metal repair tape to reflect light, then starting with the metal tape end roll the barrel around a broom handle or equivalent. These will be the lightweight gun barrels.

Step 2



- After priming the barrels to get good paint coverage, construct the main barrel support structure by making three triple-thick cardboard disks about 6" in diameter. Using a compass and ruler (a great chance to prove to an 11-year-old that geometry is a good skill!), evenly space holes around the disks for the barrels; six in this design. A sharp spade drill bit worked for making the holes in the disks. Drill a hole for the copper pipe in the center of each disk, and use plenty of hot glue to hold this fast-spinning section together. Spacing of the disks isn't critical, but leave at least

Step 3



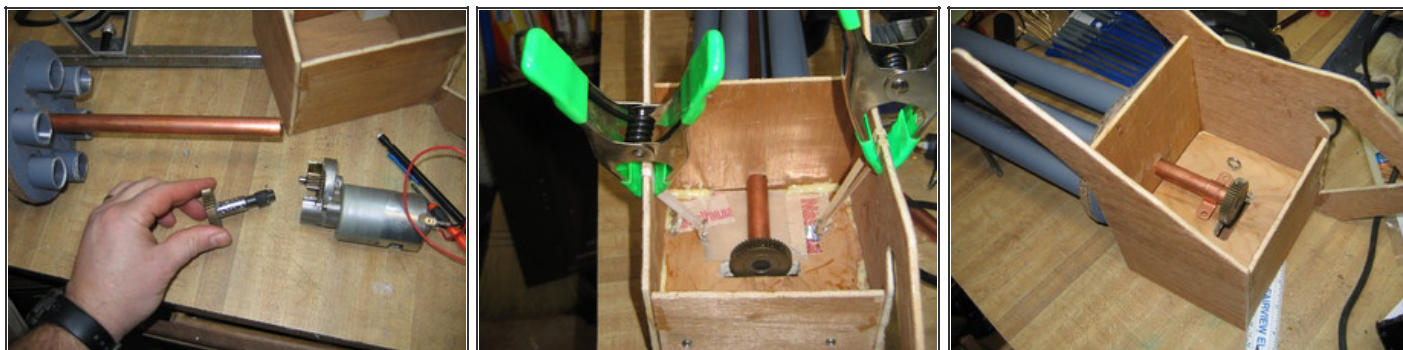
- Lay out the main body of the minigun, sizing accordingly for the intended user. Using thicker 3/4" plywood for the trigger handle piece (right side) and motor shelf worked well. The rest of the box was constructed from lightweight 1/4" plywood. The overall shape can be virtually anything, as long as there's area in the middle for the motor and some LED batteries.

Step 4



- The box can be assembled with wood glue. Adding small corner blocks helped to make the case sturdy enough for trick-or-treat night. The 3/4" plywood was clamped and glued to the inside of the handle. A short dowel worked well as the forward handle.

Step 5



- Drill a hole in the center of the front face of the box for the copper pipe, then determine the position of the gear from part of the gear assembly. If a drill chuck is used, center the pipe accordingly. Part of the gear shaft was glued into the main copper tube using gorilla glue. If a power drill motor is used, a scrap bit could be inserted, then clamped by the chuck. A piece of sheet metal was placed under the copper pipe on the shelf to reduce friction and wear, and a groove cut in the shelf for the gear. In order to get the shelf snug against the pipe, rubber bands were clamped

Step 6



- Mount the motor. This will be very dependent on the size and shape of the power tool it came from. The key is to get it very secure; there is a fair amount of torque. Run wires for the motor through the box, then out along the 3/4" plywood. In this build, a battery powered drill trigger was used, so the variable speed function could be used. A momentary push button switch was placed above the trigger to activate the high-intensity LEDs that were installed above the copper pipe. A red and a white LED were used, though different combos may give better effects.

Step 7



- To lighten the gun, the 18V rechargeable battery was detached and a wire connector was soldered inline. This allows the battery to be placed in a back pack or disconnected altogether. The gun was painted lighter gray to allow it to be more visible at night. The two forward cardboard disk edges were covered with tape and the aft disk edge was covered using a 1" strip of posterboard, extending aft and almost touching the box wall, which seals out stray light from the LEDs.

Step 8



- The final product! Two small slots were cut on each side of the ends of the barrels to allow LED light to escape, so spectators could see the "flames" from more angles than just the front. Ample demonstrations while Trick or Treating often led to extra bonus candy for such a cool prop. The minigun battery was stored in the costume's backpack. A briefcase shoulder strap was added to ease the weight burden, though the minigun is not that heavy.

This is a great work-together project; many of the steps were easily completed by an 11-year-old -- pretty much heart of the envelope for such a costume prop!

